



DESIGN AND MANUFACTURING OF HYBRID IC ENGINE 2-WHEELER

Deepankar Tiwari¹ | Rahul Kumbhar¹ | Akash Gupta¹ | Sumit Kadus¹ | S. L. Konde⁴

¹Student Department of Mechanical Engineering, Trinity Academy of Engineering, Pune Maharashtra India.

⁴Professor Department of Mechanical Engineering, Trinity Academy of Engineering, Pune Maharashtra India.

ABSTRACT

The automobile of today is the result of the accumulation of many years of pioneering research development. In the modern trend automobiles have certain disadvantages soon as fuel cost relative to mileage and pollution. Above that due to human negligence there is untimely empty fuel situation, vehicle breakdown. The only choice remain is to either call towing services or push the vehicle to the nearest service or refueling station. A 'gasoline-electric hybrid vehicle' or 'hybrid electric vehicle' is a vehicle which relies not only on batteries but also on an internal combustion engine which drives the wheels. The goal of this project is to implement the most efficient and less polluting vehicle. In our project the hybrid electric vehicle model combines the internal combustion engine of a conventional vehicle with the battery and electric motor of an electric vehicle, resulting in twice the fuel source reliability vehicle.

KEYWORDS: Hybridization of existing IC engine 2 wheeler, hub motor.

I. INTRODUCTION:

Electric and hybrid revolution is reaching its full swing now. But it is limited to 4 wheeled vehicles. Why not introduce the concept of Hybrid 2 Wheelers? More than 70% of the vehicular population drives on 2 wheelers. Also the front wheel of these vehicles is always a free wheel which has not more than a very few functions to perform. Why let this go to waste when even this wheel can be put to use! Using a hybrid concept can efficiently reduce the use of petroleum these vehicles consume^[1]. As the petroleum prices are soaring high in the global market and even the depletion of natural resources threatens us, this concept can be used in the existing vehicles which will be in use even in the future. The demand for oil has increased significantly. Moreover, current automobiles utilize only 25% of the energy released from petroleum and rest is wasted into the atmosphere, making the vehicle inefficient as well as creating a hazardous environment. Despite recent efforts to improve fuel efficiency and reduce toxic emissions in cars, emissions have continued to increase exponentially in the past two decades. In this environment conscience world there is need to decrease in growing pollution, carbon foot print and fuel prices. Due to above reason today's automotive industry is turning towards green and clean energy sources like electric automobiles, but as being a developing nation this transition cannot be done abruptly, as time is needed to stand any infrastructure. The hybridization of a conventional combustion engine vehicle with an advanced electric motor drive may greatly enhance the overall efficiency and achieve higher fuel with reduced emissions.

II. OBJECTIVE:

1. To upgrade existing system by providing dual energy source to the existing single energy source automobile in less expense.
2. To decrease pollution emission and encourage use of clean and green energy.
3. Provide bridge between the conventional and new hybrid system.
4. A cheap alternative than buying a brand new hybrid automobile beneficial for economical class.

III. LITERATURE REVIEW:

Design and fabrication of hybrid electric bike^[1]:

In this paper they have mainly focused on the mileage and efficiency of hybrid bike. They have performed the design on bajaj boxer (old). The requirement what they expected to get minimum speed of 25 kmph in urban areas. For getting the requirement they used the hub motor which can generate the power of 800w 48v which is placed in rear wheel.

Study on TNE implementation of hybrid two wheelers in the Indian market^[2]:

The study shows that the implementation of hybrids can prove to be a huge success given the right marketing strategy and performance delivery. They work on Series Hybrid Electrical Petroleum Bicycle system is a type of hybrid system, in which a bicycle works by using electricity until battery get discharged and then generator gets started to charge the battery and also to keep vehicle in running condition during the journey.

Hybrid two wheeler^[3]:

Here the paper shows the power train efficiency of the range extended electric

vehicle is compared in different driving cycles, energy management strategies and range extended control methods the range extender uses thermostat control method, the system efficiency is the maximum. The energy efficiency can reach 33% the comprehensive efficiency of generator, rectifier can reach above 90% daily trip mileage is 130km per full charged battery and 1ltr petrol.

Hybrid electric vehicle^[4]:

This paper shows different types of powertrain can be used for hybridization of bike. The transmission of power using free wheels and chain wheels is very cheap and reliable one disadvantage is that driving o electric power is not a good option for long distance travel. Though this combine power train system can become much useful in more stop and go traffic situations with the use of such power train system the overall fuel consumption and fuel economy is improved.

Energy efficient hybrid electric bike^[5]:

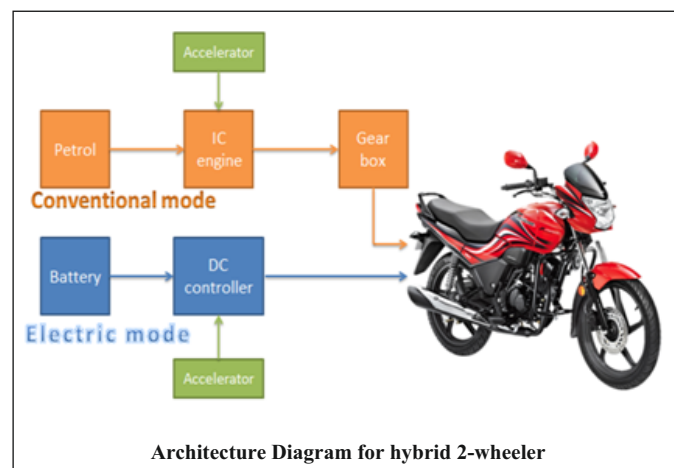
One of the major problem that we face on day to day life is energy crisis. This paper shows one of the solutions for such crisis by implementing this system. Here different type of breaking system which are reliable for efficiency are focused. Types of breaking can be dynamic breaking or regenerative breaking.

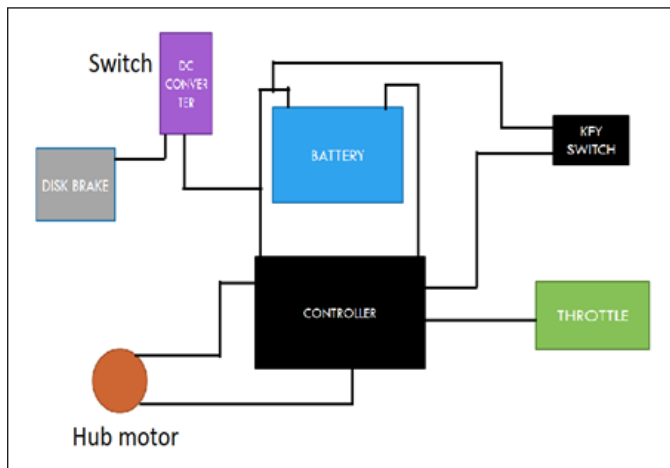
Fabrication of hybrid petro electric vehicle^[6]:

In this paper modification and fabrication of TVS scooty is done. Here BLDC hubmotor is placed to the front wheel of vehicle. The front wheel has been removed and the fork has been altered so that it fits exactly to the size if motor wheel. The setoff series connected 4 batteries set is kept between the eat and engine.

IV. METHODOLOGY:

The proposed system has an ability combine both the system electric and conventional It is a parallel type of hybridization which means both systems will be situates side by side and work complementary to each other.



V. CIRCUIT DIAGRAM:**VI. ADVANTAGES:**

- Low operating cost.
- Dual source of energy.
- Less pollution.
- Ease to select any source.
- Less energy consumption.

VII. CONCLUSION

The study shows that the implementation of hybrids can prove to be a huge success given the right marketing strategy and performance delivery. The whole-some positive response from considered population shows that the hybrids have a huge potential in the current market, especillay when the prices of fuel have gone through the roof. Thus we have concluded that two wheeler can even run on duel fuel system through proper design and modification in machine.

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